



Market information systems

Using information to improve farmers' market power and farmers organizations' voice

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June 2012

1. Background and issues

Agriculture Market Information Systems (MIS) collect, process and disseminate information on the situation and the dynamics of agricultural markets in order i) to improve public policies through increased awareness of market realities and ii) to increase market transparency and, by this way, to lead to a fairer and more efficient allocation of resources.

MIS information can be used by farmers both for advocating for more producer-friendly policies (through farmers' organization) and to guide their production and marketing decisions (choice of what, when and where to sell). In addition, as small farmers' market power is hindered by their lack of information on price levels and changes at different points of the marketing chain, strengthening smallholder farmers' access to information can improve farmers bargaining position.

Market Information Systems (MIS) started to be promoted in developing countries in the 1980s, after market liberalization and the withdrawal of parastatal agencies from agricultural sector. These first generation MIS were almost all based on a similar model, regardless of the type of product and the country concerned: only one type of product was covered (cereals, cattle...), exclusive focus on prices, nation-wide coverage, dissemination through radio broadcasts, partnership with public institutions (marketing boards, agricultural ministries, etc.) and project-based funding. By the end of 1990's, a second generation of MIS came up, mainly as a result of the emergence of ICT (cell-phones and Internet). These new technologies have brought about organizational innovations: dissemination through SMS messaging, for example, helped develop user-paid information services, opening a new market for private companies. As a result, today there is a great diversity of models among the second generation of MIS.

If these different models offer different opportunities for farmers, they also entail the risks of excluding some of them. The objective of this brief is precisely to help farmers to identify the different advantages and drawbacks of the different MIS models..

2. The second generation of MIS: a diversity of models

By the end of 1990s, the emergence of cell-phones and the spread of the Internet offered huge opportunities. Before, transmission of price data from the collection point to the central unit, could take several days. Nowadays, “real time” information can be delivered within a few hours.

A fundamental change is the possibility of interactivity offered by the Internet or cell-phones: instead of “push” systems, where a package of standard information is disseminated to all the users, “pull” systems can be developed, where each user can choose the information he or she needs from a wide array (either by single requests or by individualized subscription systems). This enabled expanding the categories of products as well as taking into account different quality standards. Data is no longer limited to prices, but includes other information related to markets (local trade flows, imports/exports, contacts of buyers or sellers), production (weather, technical advice) or policy measures (standards, regulations). Through individual bids and offers, real transaction opportunities and buyers/sellers contacts can be transmitted. Moreover, this interactivity enables MIS managers to follow-up which information is used (by tracking user-selected information through the number of requests sent to the MIS or the number of downloads) and then to adjust the service provided to fit the users' needs.

The surge of mobile phone usage has attracted private entrepreneurs who have set up market information services such as Esoko/TradeNet or Manobi. In addition, national farmers' organizations have expanded their scope from production issues to marketing issues, and have become involved in MIS as well, often with project support.

Beyond market information, second generation MIS are in some cases associated with complementary services that reduce market risks through storage facilities and credit, warehouse receipt systems, commodity exchanges. In addition, they seek to contribute to productivity enhancement through improved input access or technical training.

3. Lessons learned

The need for a wider range of services, for policy making as for market efficiency

First lesson learned is that a MIS must do more than disseminate price data.

To support policy decisions, MIS must provide comprehensive and analytical information, explaining market situation determinants, price formation from farm to consumer, interactions with regional or international markets etc. This broader market observatory approach can then contribute to define and implement consistent policy measures. Some MIS succeeded in playing a major role in policy and food-security monitoring (for example OMA in Mali), in great part because of the link they built with universities or research centres.

To farmers and market operators, MIS should provide commercial information on market trends, individual contacts with commercial potential partners, transaction opportunities (bids and offers). Also technical information such as weather forecasts, production advice can be offered (**Error! Reference source not found.**). The information can be customized to fit individuals through Interactive Voice Response¹, individual advice or brokerage services.

¹ IVR, technology that allows a computer to interact with humans through the use of voice and DTMF (Dual-tone multi-frequency signalling) tones input via keypads

Box 1 - Reuters Market Light (RML) in India

RML performs price quotations for 800 agricultural products on 1350 markets in 13 regions of India. It has expanded its services to information on weather forecasts, agricultural advice and information on input prices. The information is sent by SMS, according to the profile defined by the user (product, market, advice, weather forecasts). Personalized advice can also be obtained by telephone through a network of specialists associated with RML, covering various fields of production and agricultural marketing. The scratch cards, distributed by rural shopkeepers, provide access to services.

Established in 2007, RML is used by 2 million producers at the end of 2011 and hopes to be self-f

Second, the more diverse and abundant the information provided by a MIS is, the more effort must be dedicated to sensitizing and training (which has been very often neglected). This includes either sensitizing the users about the services offered, or training users on how to access to the data and how to use the information provided for cropping or selling decisions. The combination of SMS dissemination, with radio programs oriented to marketing training, can be very useful for this purpose (see below).

Box 2 - SIEL: a MIS targeting vegetable farmers in Madagascar

SIEL was created in 2006 by the Association FERT, which collaborates closely with the farmers' organizations in supporting the production and marketing of vegetables.

Prices of 5 main vegetables are published in 17 wholesale and retail markets. Prices and a qualitative indication of the level of the offer (+++, ++, +) are mainly disseminated via billboards updated weekly in fifteen-production markets. Distribution through rural radio also exists in some areas. In addition, SIEL broadcasts monthly market reports in two newspapers for farmers.

The lack of economic information is clearly felt by the vegetable producers and their organizations; the requests made in this direction have led to extend the areas covered by SIEL. However, the actual use of SIEL information by producers remains limited, due to the market functioning and actors' strategies on the one hand (many farmers sell along the road and seldom go to the market; loyalty relations are frequent to limit the risk related to perishable vegetables; buyers are often in oligopsony positions), on the other hand on the effectiveness of the service itself.

Billboards are not well-known and pose difficulties in understanding, in a context where the average level of education of farmers is very low. Knowledge and understanding of the information is much better (i) in the few areas where SIEL broadcasts by radio, the presenter providing some explanations in addition to price alone, (ii) by producers supervised by FERT, which are supported on collective production and marketing.

Source : Penche A. 2009. Le Service d'Information Economique des Légumes (SIEL) : diagnostic et perspectives. Montpellier, IRC-SupAgro, FERT.

Finally, bringing together MIS with other aspects of marketing support, can further improve the bargaining position of farmers. Marketing support can include credit access, storage infrastructure, warehouse receipt systems (WRS), collective marketing support, improved market place facilities or commodity exchanges. The linking of MIS to new market institutions such as WRS or commodity exchanges can also enhance the success of such market institutions.

Box 3 - Ethiopian Commodity Exchange (ECX)

Established in 2008, the ECX handled U.S. \$ 1.1 billion value of products in 2010, mainly coffee (almost all Ethiopian coffee is sold through ECX) but also sesame, cowpea, maize and wheat. The exchange is a public-private partnership, co-managed by the government and traders shareholders.

ECX has adopted an integrated approach to marketing, combining a commodity exchange, a grading system, warehouse receipts certification, and a MIS. Price information is disseminated via the website, electronic billboards in 250 rural markets, radio (3 times a day), television (2 times a day), newspapers, newsletters (daily, monthly and half-yearly), SMS, and interactive voice mail (in several languages).

Funding for this service is provided by fees applied to transactions on the stock exchange. Currently, SMS are free, to familiarize producers with the tool. The MIS hopes to move quickly to a 1 cent SMS service.

The need for an enabling institutional position

MIS institutional position matters. Because first generation MIS were usually run by a public administration, there was a lack of flexibility and reactivity, making MIS costly and unsustainable. Links with professional organizations such as national farmers organisations, chambers of agriculture (or joint trade organizations), can provide more incentives to meet farmers' needs and contribute to strengthen the advocacy capacity of farmers' organizations, which often have a limited voice in policy dialogue in LDCs.

The need to combine different media for dissemination

Indubitably, the internal use of ICT (between enumerators and MIS central unit) improved MIS performance by reducing transmission delays and errors. However, using ICT (mainly cell phones) to disseminate information to markets actors is more controversial. The MIS which rely heavily on mobile phones run the risk of bypassing remote areas that are not covered by mobile phone networks, poor farmers who cannot afford cell phones or illiterate farmers who have difficulties in using SMS. Is there a trade-off between an efficient service and a pro-poor service?

Studies on use of MIS have indicated that many more farmers tend to listen to radio broadcasts than use the SMS service. Moreover, SMS service users generally make few information requests, mostly at the moment they want to sell, losing the overview of the seasonal price movement they can get listening regularly to a radio program. This function as a tool for 'learning how the market works' can better be achieved with interactive radio programs (lasting 15 to 30 minutes) than by classical short radio programs giving only 2 minutes price information.

In time, the role of ICT in the dissemination of MIS information will probably increase: young farmers adopt more easily than the elders new technologies such as SMS or IVR and it is expected that even remote areas will be covered by mobile phone networks and that costs will come down even more. Anyway, if MIS aim to target the wider share of rural population and to enhance farmers' learning of 'how the market works', the complementarity between several dissemination media should be promoted; radio being the less expensive and most popular one.

Box 4 - KACE: a diversity of complementary dissemination media

The Kenya Agricultural Commodity Exchange (KACE) was established in 1997. It covers a wide range of products: cereals, vegetables, roots and tubers, fruits, milk, livestock, fish, fertilizer. A unique feature of KACE is that it combines the functions of a MIS and those of a network of micro commodity exchanges (Market Resource Centres or MRC), located close to major markets in the country. The case of KACE is also interesting for its variety of types of information and modes of dissemination, periodically adapted to optimise the costs and fit the users' needs:

- Price information on radio (national and local) and via billboards in MRCs.
- Information on prices by mobile phone. A service of voice recognition (IVR) is also proposed, for illiterate users; but this service is still used far less than SMS.
- Bids to buy and offers to sell, posted through a market call center and through the MRCs, and disseminated by mobile phone (SMS or IVR)
- Bids and offers are also displayed at MRCs. MRC officers display daily all bids and offers on the billboards and put in contact interested buyers and sellers.
- Radio program on prices and a selection of bids and offers, broadcasted weekly on the national radio station (KBC). Those interested by a proposal can call the radio for contact information.
- A web site with all bids and offers (accessible with a subscription fee).

How popular are these communication media? In 2009, we estimated that the users of mobile phone services were a few thousand people. The attendance rate for MRC was highly uneven from one MRC to another. The MRC that performs well got about a hundred producers and buyers per market day. It is difficult to know how many people listen to KACE programs on national radio, but a KACE broadcasted on a regional radio was then acclaimed by listeners as their favourite show (meaning that tens of thousands of people used to listen to it regularly).

4. MIS sustainability

The issue of financial sustainability of MIS remains a crucial point. Even for those MIS that sell most of their services, they are still largely dependent on projects funds or private foundation supports. The problem is that on the one hand the cost of gathering, processing, disseminating information is high, while on the other hand the users, especially small farmers, can only afford small expenses. Cell phones address this problem (partly) by offering per unit call request or per subscription². A MIS can be made more financially sustainable by covering a wide range of products at the national level or regional block of countries. However, to be effective, a MIS needs to be adapted to each market's specificity, which is in contradiction with a one-size-fits-all system at large scale.

Mixed institutional position and funding sources

The need for public funds to make MIS financially sustainable can be justified, as general information on markets is a public good. Public-private partnerships can be a way forward for MIS, making use of the complementarity of public and private parties. Free dissemination of basic information can be supported by

² Cell-phones provide flexibility: either a minimal cost with a payment per unit (each call), or a subscription, which is more costly but allows receiving a selection of information regularly. Despite this flexibility, the total revenue from these services does not cover the costs.

public resources, while selling more elaborate or specific information (e.g. market analysis, quality specifications, individual advice), and providing complementary income generating services (e.g. brokerage, storage, information package backing contracts between agro business and farmers).

MIS assessment stake: understanding the processes, rather than measuring the impact

Although assessing the impact of MIS is important, especially when donors have invested funds, this is no easy matter. The impact of MIS can be expected at different levels:

- Improvement in the effectiveness of policy measures (such as targeting food aid, determining the buying/selling price in the case of public storage).
- Reduction of price instability, because of improved spatial and temporal arbitrage.
- Increase of price received by farmers and reduction of consumer price.
- Production growth, due to better farmers' response to market incentives.

These are difficult to grasp and measure. If an improvement is identified over time, it is not easy to isolate the MIS contribution from the contribution of other elements of the market environment (such as market liberalization, infrastructure investments, spread of new ICT). In practice, only a few impact analyses have been done on MIS, comparing a beneficiary group with a non-beneficiary one with the same characteristics, over the same period. However, this kind of studies can only capture a very small part of MIS potential impact. It cannot capture the improvement of policy consistency, neither the impact on overall market performances. Moreover, these studies require big samples of a relatively homogeneous category of agents (for instance the producers of a specific product in a specific region of the country), thus excluding many other categories of potential beneficiaries (such as consumers, traders, producers of other commodities or living in other regions). Last but not least, trying to isolate the impact of a MIS doesn't really make sense as the provision of market information needs to be associated with a set of other interventions and tools to be really efficient.

The practical implication of this is that it would be very dangerous to use this kind of studies to decide whether or not to fund a MIS. MIS impact assessment studies should rather be used to understand the causality chain through which MIS generate changes and impacts (and therefore as a tool to improve MIS). For this objective, perhaps lighter monitoring and evaluation systems could be more efficient (in order, for instance, to estimate the level of use of the different information provided by the MIS and to identify the requirements of users, their constraints of access, the complementarity between price information and other services that MIS can provide).

This brief is an outcome of a research program on Market Information Systems in Africa, part of ESFIM Comparative research, co-funded by the Agence française de développement (AFD) and the Technical Center for Agricultural and Rural Cooperation (CTA) carried out by a CIRAD - INRA team from the UMR MOISA, with some collaboration with a team from Michigan State University (MSU). For further information:

<http://www.esfim.org>, <http://www.sim2g.org>, and http://aec.msu.edu/fs2/wamip_II/index.htm. Contacts: benz@cirad.fr, galtier@cirad.fr, j.egg@iram-fr.org, frederic.lancon@cirad.fr

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